

Lower Colorado River Basin Feasibility Study

Rob Newman - CESWF

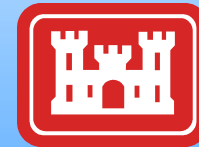
Shane Hunt - CESWG

Patricia McCoy - LCRA

E&E Conference April 15, 2004



**Lower Colorado
River Authority**



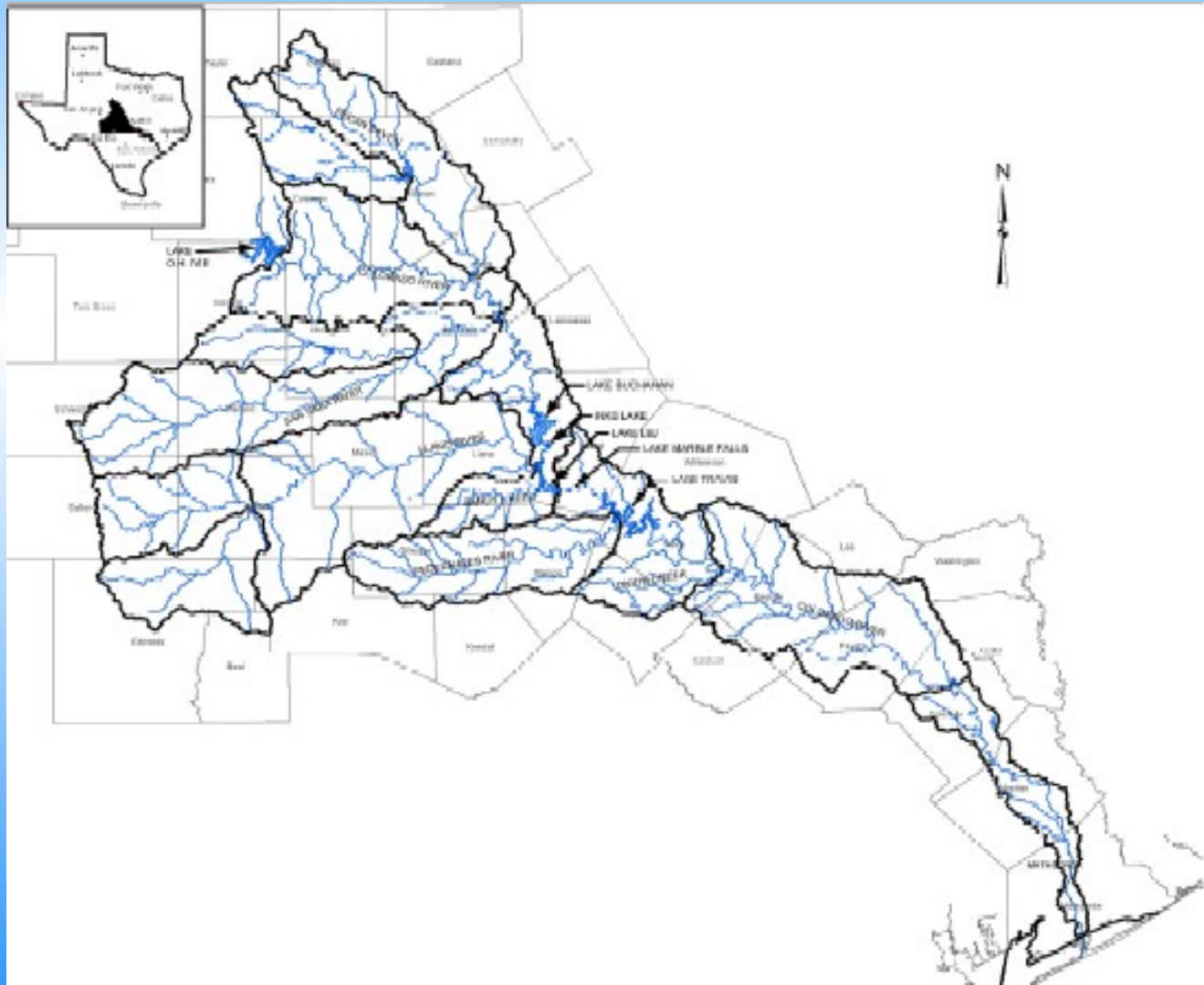
**US Army Corps
of Engineers**

LCRB Study Purpose



- Identify water resource problems and opportunities in the Lower Colorado River Basin on a watershed scale
- Develop and evaluate alternatives for flood damage reduction from Lake Buchanan to Matagorda Bay
- Develop and evaluate ecosystem restoration opportunities along the Highland Lakes and mainstem of the river, from Lake Buchanan to Matagorda Bay

Lower Colorado River Basin



LCRB Study Overview



- The feasibility study has four phases
 - Phase 1, the problems and opportunities phase, was completed during 2003
 - Phase 2, the Interim Feasibility Studies, is ongoing.
 - Phase 3, the Programmatic Environmental Impact Statement, is due in Aug 05
 - Phase 4 entails a final report to Congress

LCRB Phase 1



- Phase 1 identified five interim feasibility studies concentrating on flood damage reduction
 - Onion Creek
 - City of Wharton
 - Highland Lakes
 - Shoal Creek
 - Walnut Creek

Phase 1 Continued



- In addition to flood damage reduction, over 30 potential ecosystem restoration sites were identified and grouped into the following categories:
 - Sand and Gravel Mining Restoration
 - Abandoned Oxbow Restoration
 - Riparian Habitat Restoration
 - Wetland Restoration
 - Invasive Species Management
 - Bays and Estuaries Restoration

Abandoned Sand and Gravel Mining Restoration



Abandoned Oxbow Restoration





NO RIPARIAN
HABITAT

Phase 1 Continued



- Phase 1 ended with the Lower Colorado River Basin Study Information Paper – October 2003
- The remainder of today's discussion will Focus on the ecosystem restoration portion of the study

LCRB Phase 2



Unlike traditional studies, no previously identified ecosystem restoration sites were identified by the sponsor in this study

Therefore, ArcGIS was utilized to identify potential ecosystem restoration sites throughout the basin without any other background information

Phase 2 Continued



- The 30 individual restoration sites will be assessed and ranked based on their environmental benefits as well as the overall project goals and objectives

Methodology



- Establish selection criteria
- Rank potential ecosystem restoration sites
- Select sites warranting further investigation
- Identify additional sponsors for future phases

Preliminary Criteria Considered



Habitat Units Restored
Habitat Significance
Habitat Type
T&E Species Benefits
Land Cost
O&M Cost
Cost of Restoration/acre
Water Quality
Flood Reduction Potential
Preservation Benefits
Benefits to Instream Flow
Land availability
Sustainability

Connectivity
Recreation benefits
Sponsorship
Size of Site
Accessibility
Environmental Justice
Environmental Leadership
Stakeholder Acceptability
Agencies Acceptability
Permits
HTRW
Cultural Resources
Hydrology

Preliminary Criteria Retained For Further Analysis



Habitat Units Restored

Habitat Significance

Habitat Type

T&E Species Benefits

Land Cost

O&M Cost

Cost of Restoration/acre

Preservation Benefits

Water Quality

Flood Reduction Potential

Benefits to Instream Flow

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Stakeholder Acceptability

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HTRW

Cultural Resources

Hydrology

Categories



Habitat

Habitat Units Restored
Habitat Significance

Practicability

Permits
HTRW
Cultural Resources
Hydrology
Land Availability
Sustainability

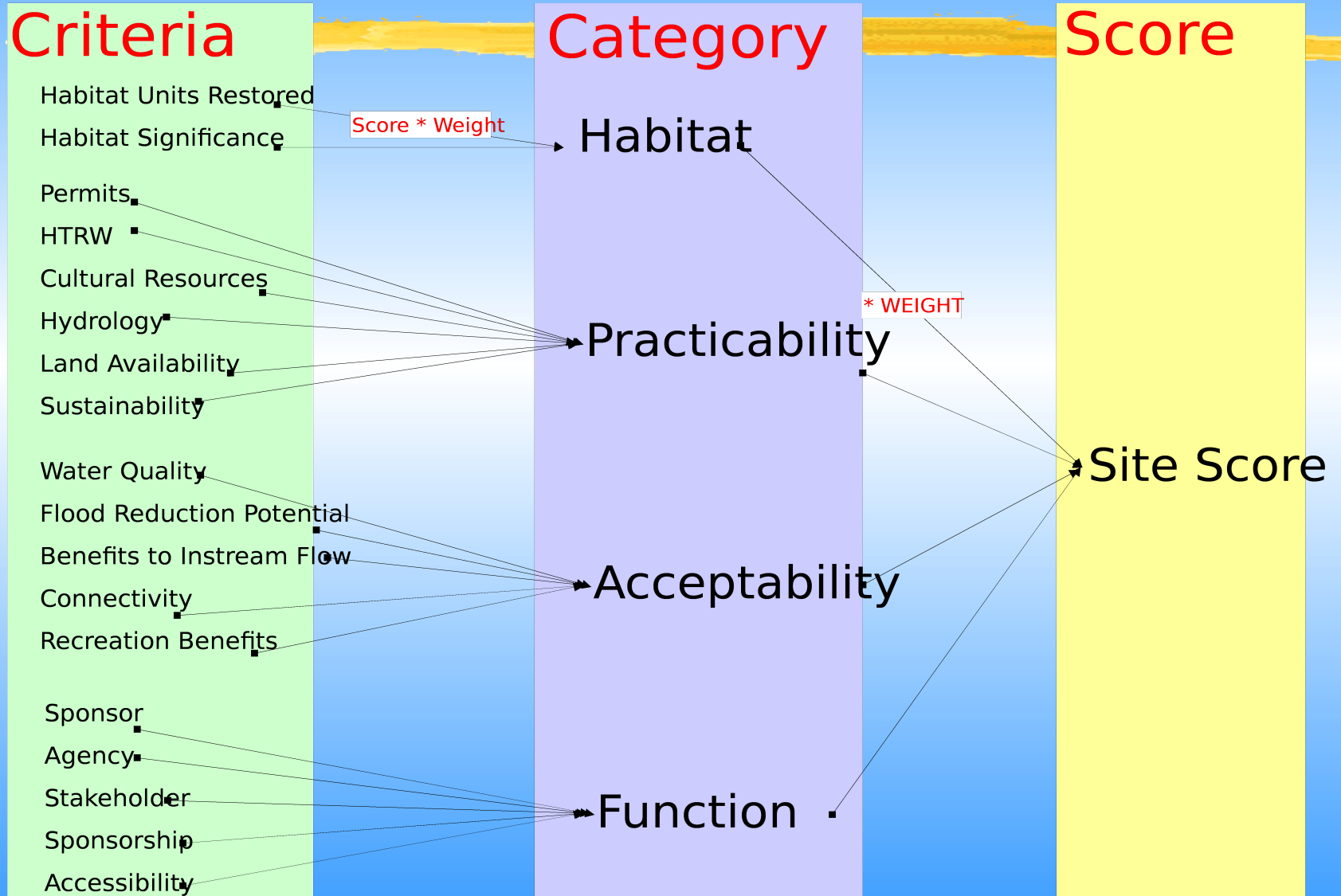
Acceptability

Sponsor
Agency
Stakeholder
Sponsorship
Accessibility

Function

Water Quality
Flood Reduction Potential
Benefits to Instream Flow
Connectivity
Recreation Benefits

Overview of Scoring



Category Weighting



• Categories:	Weights:
Habitat	35%
Function	35%
Acceptability	20%
Practicability	10%

Criteria Weighting

Habitat

Habitat Units Restored
40%
Habitat Significance 60%

Practicability

Permits 10%
HTRW 10%
Cultural Resources 10%
Hydrology 10%
Land Availability 30%
Sustainability 30%

Acceptability

Sponsor 30%
Agency 20%
Stakeholder 10%
Sponsorship 30%
Accessibility 10%

Function

Water Quality 40%
Flood Reduction 10%
Instream Flow 10%
Connectivity 30%
Recreation Benefits 10%

Criteria Example



Habitat Significance:

- 1 – Not justifiably significant.
- 2 – Minimal justifiable significance.
- 3 – Moderately significant habitat based on regional recognition/importance.
- 4 – Significant based on benefits anticipated to species of recreational or commercial importance, nationally significant, or the habitat being considered highly vulnerable/scarce.
- 5 – Highly significant based on benefits to habitat for species considered threatened or endangered.

Example Site

Site 4-6 Gravel Mine Near Onion Creek Confluence



Example Ranking

SITE NAME: 4-6

DATE: March 2004

PEOPLE INVOLVED: Rob Newman and Shane Hunt

OVER ALL SITE SCORE: 84.3

CATEGORY	CRITERIA	SCORE 1-5	WEIGHT 0.0-1.0	WEIGHTED SCORE	TOTAL CRITERIA SCORE	CATEGORY WEIGHT 0.0-1.0	CATEGORY WEIGHTED SCORE
Habitat	HUs	5	0.4	2	4.4	0.35	1.54
Habitat	Significance	4	0.6	2.4			
Function	Water Quality	5	0.4	2	3.7	0.35	1.295
Function	Flood Reduction	1	0.1	0.1			
Function	Instream Flow	1	0.1	0.1			
Function	Connectivity	4	0.3	1.2			
Function	Recreation	3	0.1	0.3			
Acceptability	Sponsor	5	0.3	1.5	5	0.2	1
Acceptability	Sponsorship	5	0.3	1.5			
Acceptability	Accessibility	5	0.1	0.5			
Acceptability	Stakeholders	5	0.1	0.5			
Acceptability	Agencies	5	0.2	1			
Practicability	Permits	4	0.1	0.4	3.8	0.1	0.38
Practicability	HTRW	4	0.1	0.4			
Practicability	Cultural	5	0.1	0.5			
Practicability	Hydrology	4	0.1	0.4			
Practicability	Land Availability	3	0.3	0.9			
Practicability	Sustainability	4	0.3	1.2			

Preliminary Ranking



- A preliminary ranking was conducted to test the methodology
- A final ranking will be performed during the next several months
- A interdisciplinary team will conduct the ranking and notes will be taken to justify results

Results of Preliminary Ranking

CATEGORY	CRITERIA	4-1 Webberville (Travis County Park)		
		Site 2-1 Near Nada		4-6
Habitat	HUs	5		4 5
Habitat	Significance	4		4 4
Function	Water Quality	4		4 5
Function	Flood Reduction	3		3 1
Function	Instream Flow	3		3 1
Function	Connectivity	5		3 4
Function	Recreation	3		4 3
Acceptability	Sponsor	5		2 5
Acceptability	Sponsorship	3		2 5
Acceptability	Accessibility	5		5 5
Acceptability	Stakeholders	4		3 5
Acceptability	Agencies	5		5 5
Practicability	Permits	4		4 4
Practicability	HTRW	4		4 4
Practicability	Cultural	5		5 5
Practicability	Hydrology	5		5 4
Practicability	Land Availability	4		2 3
Practicability	Sustainability	4		4 4
		84.4		71.7 84.3

Max Score = 100

Next Phases of Work



- Perform the final ranking
- Utilize the findings of the ranking to solicit additional sponsorship
- If additional sponsorship is found conduct remainder of this portion of the feasibility study

Conclusions



- Multiple ecological problems and opportunities were identified leading to an abundance of potential projects
- The ranking criteria that were developed to provide us the background information needed to make a rational decision as to which sites our interests should focus on while keeping the remainder of the projects available if opportunities arise

Who to contact



- Rob Newman – Fort Worth District
 - Rob.Newman@swf02.usace.army.mil
 - 817-886-1762
- Shane Hunt – Galveston District
 - Shane.D.Hunt@swg02.usace.army.mil
 - 409-766-6390
- Patricia McCoy – LCRA
 - Pmccoy@lcra.org
 - 800-776-5272 x 7701